

AN ANNOTATED CHECK-LIST OF TREMATODES AND
CESTODES AND THEIR VERTEBRATE HOSTS
FROM NORTHWEST FLORIDA¹

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Research on various phases of helminthology has been under way at Florida State University since about 1950. As a result of these investigations, an appreciable number of parasitic flatworms have been discovered in the northwest section of Florida, particularly near the F.S.U. Oceanographic Institute's marine laboratory at Alligator Harbor (Franklin County), and in Leon County and surrounding areas. The monogenetic trematodes of marine fishes have been studied in detail by Hargis (1955a-1957) and the findings widely published. However, few of the Digenea and none of the Cestoda from the region have been recorded in the literature. The present check-list of parasitic flatworms and their hosts (excluding the work of Hargis) was prepared to bring together the results of these various studies as an aid to future workers on the helminths of this region.

The Florida State University slide collection, personal collections of graduate students, published reports and unpublished student papers were used as sources for this list. Only worms identified to genus and/or species are included. Identifications are those of the workers named in the annotated list; no attempt was made to check their identifications. Many specimens in the F.S.U. collection have not yet been identified; these remain for future study.

This check-list is presented in two parts: a systematic list of worms; and a host list in which the parasites are presented according to their vertebrate hosts. This host list is annotated. For convenience, the taxonomic scheme of Dawes (1946) was followed for the Monogenea, of Yamaguti (1958) for the Digenea, and of Wardle and McLeod (1952) for the Cestoda.

Following each name in the systematic list is a letter in parentheses, referring to the class of the vertebrate host: (C) for Chondrichthyes, (O) for Osteichthyes, (A) for Amphibia, (R) for Reptilia, (B) for Aves, and (M) for Mammalia. The reader may be guided

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by these letters to the appropriate section of the host list for further details. Preceding each name in the systematic list is a numeral, given serially for each group of parasites (Monogenea, Digenea, Cestoda). Corresponding numbers appear in the host list following the name of each parasite as an aid in cross reference.

Routinely, each entry in the host list contains, in order, the name of the parasite, host, location in host, locality, and the identifier. When a record has already appeared in the literature, the identifier's name includes a citation. Other pertinent remarks may follow.

I wish to thank Dr. R. B. Short, under whose direction most of these studies were made, and Dr. Short's students for their generous cooperation in the preparation of this check-list.

SYSTEMATIC LIST

Class TREMATODA

Order MONOGENEA

Family DACTYLOGYRIDAE Bychowsky, 1933

1. *Urocleidus principalis* (Mizelle, 1936) Mizelle & Hughes, 1938. (O)

Family DISCOCOTYLIDAE Price, 1936

2. *Grubea* sp. (O)

Family POLYSTOMATIDAE Gamble, 1896

3. *Neopolystoma orbiculare* (Stunkard, 1916) Price, 1939. (R)
4. *Polystoma integerrimum* (Frolich, 1791) Rudolphi, 1808. (A)
5. *Polystomoidella oblonga* (Wright, 1879) Price, 1939. (R)

Order DIGENEA

Family ACANTHOCOLPIDAE Lühe, 1909

1. *Stephanostomum* sp. (O)

Family ALLOCREADIIDAE Stossich, 1903

2. *Opecoeloides fimbriatus* (Linton, 1934) Sogandares-Bernal & Hutton, 1959. (O)

Family BRACHYLAEMIDAE Joyeux & Foley, 1930

3. *Brachylaema* sp. (B)

Family BUCEPHALIDAE Poche, 1907

4. *Bucephalopsis* sp. (O)
5. *Bucephalus cuculus* McCrady, 1874. (O)

Family CYCLOCOELIDAE Kossack, 1911

6. *Cyclocoelum obscurum* Leidy, 1887. (B)

Family DICROCOELIIDAE Odhner, 1911

7. *Brachylecithum americanum* Denton, 1945. (B)

Family DIDYMOZOIDAE Poche, 1907

8. *Distomum fenestratum* Linton, 1907. (O)

Family DIPLOSTOMIDAE Poirier, 1886

9. *Pharyngostomoides ovale* Chandler & Rausch, 1946. (M)
10. *Posthodiplostomum* sp. (B)

Family ECHINOSTOMATIDAE Poche, 1926

11. *Echinochasmus* sp. (B)
12. *Echinoparyphium* sp. (B)
13. *Echinostoma* sp. (B)
14. *Himasthla* sp. (B)
15. *Longicollia* sp. (B)
16. *Stephanoprora* sp. (B)

Family EUCOTYLIDAE Skrjabin, 1924

17. *Tanaisia* sp. (B)

Family GORGODERIDAE Looss, 1901

18. *Gorgoderina* sp. (A)
19. *Nagmia floridensis* Markell, 1953. (C)
20. *Phyllodistomum* sp. (O)

Family HEMIURIDAE Lühe, 1901

21. *Tubulovesicula* sp. (O)
22. *Sterrhurus floridensis* Manter, 1934. (O)

Family HETEROPHYIDAE Odhner, 1914

23. *Galactosomum spinetum* Braun, 1901. (B)
24. *Tetracladium* sp. (B)

Family LECITHODENDRIDAE Odhner, 1910

25. *Lecithodendrium* sp. (M)

Family MICROPHALLIDAE Travassos, 1920

26. *Gynaecotyla riggini* Dery, 1958. (B)
27. *Maritrema gratiosum* Nicoll, 1907. (B)
28. *Maritrema* sp. (B)
29. *Spelotrema* sp. (B)

Family OPISTHORCHIIDAE Braun, 1901

30. *Pachytrema sanguineus* Linton, 1928. (B)

Family PARAMPHISTOMIDAE Fiscoeder, 1901

31. *Megalodiscus* sp. (A)

Family PHILOPHTHALMIDAE Travassos, 1921

32. *Parorchis acanthus* (Nicoll, 1906) Nicoll, 1907. (B)

Family PLAGIORCHIDAE Ward, 1917

33. *Haematoloechus floedae* Harwood, 1932. (A)
 34. *Haematoloechus medioplexus* Stafford, 1902. (A)

Family PLEORCHIDAE Poche, 1926

35. *Pleorchis americanus* Lühe, 1906. (O)

Family PRONOCEPHALIDAE Looss, 1902

36. *Macravestibulum* sp. (R)

Family PROTERODIPLOSTOMIDAE Dubois, 1936

37. *Crocodicicola pseudostoma* (Willemoes-Suhm, 1870) Poche, 1925. (R)
 38. *Polycotyle ornata* Willemoes-Suhm, 1870. (R)

Family PSILOSTOMATIDAE Odhner, 1913

39. *Psilochasmus* sp. (B)

Family RHOPALIASIDAE (Looss, 1899) Yamaguti, 1958

40. *Rhopalias baculifer* Braun, 1900. (M)
 41. *Rhopalias coronatus* (Rudolphi, 1819) Stiles & Hassall, 1898. (M)

Family SANGUINICOLIDAE Graff, 1907

42. *Cardicola laruei* Short, 1953. (O)
 43. *Selachohemecus olsoni* Short, 1954. (C)

Family SPIRORCHIDAE Stunkard, 1921

44. *Vasotrema* sp. (R)

Family STRIGEIDAE Railliet, 1919

45. *Cardiocephalus medioconiger* Dubois & Viguera, 1949. (B)
 46. *Cotylurus aquavis* (Guberlet, 1922) Szidat, 1928. (B)

Family TELORCHIDAE Stunkard, 1924

47. *Telorchis* sp. (R)

Family TROGLOTREMATIDAE Braun, 1914

48. *Renicola glandoloba* Witenberg, 1929. (B)

Class CESTODA

Subclass EUCESTODA

Order PROTEOCEPHALA

Family PROTEOCEPHALIDAE La Rue, 1914

1. *Ophiotaenia* sp. (A)

Order TETRAPHYLLIDEA

Family ONCHOBOTHRIDAE Braun, 1900

2. *Acanthobothrium* sp. (C)

Family PHYLLOBOTHRIIDAE Braun, 1900

3. *Anthobothrium* spp. (C)
4. *Echeneibothrium* sp. (C)

Order TRYPANORHYNCHA

Family EUTETRARHYNCHIDAE Guiart, 1927

5. *Parachristianella dimegacantha* Kruse, 1959. (C)
6. *Parachristianella monomegacantha* Kruse, 1959. (C)
7. *Prochristianella penaei* Kruse, 1959. (C)

Order CYCLOPHYLLIDEA

Family ANOPLOCEPHALIDAE Cholodkovsky, 1902

8. *Atriotænia* sp. (M)
9. *Oochoristica mephitis* Skinker, 1935. (M)
10. *Oochoristica procyonis* Chandler, 1942. (M)

Family DILEPIDIDAE Railliet & Henry, 1909

11. *Dipylidium caninum* Linnaeus. (M)
12. *Liga* sp. (B)
13. *Paricterotaenia* sp. (B)

Family HYMENOLEPIDIDAE Railliet & Henry, 1909

14. *Fimbriaria* sp. (B)
15. *Hymenolepis* sp. (B)
16. *Oligorchis* sp. (B)

Family TAENIIDAE Ludwig, 1886

17. *Hydatigera lyncis* Skinker, 1935. (M)
18. *Hydatigera taeniaeformis* Batsch, 1786. (M)
19. *Taenia pisiformis* Bloch, 1780. (M)

Order PSEUDOPHYLLIDEA

Family DIBOTHRIOCEPHALIDAE Lühe, 1902

20. *Spirometra mansonoides* Mueller, 1935. (M)
21. *Spirometra urichi* Cameron, 1936. (M)

ANNOTATED HOST LIST

CHONDRICHTHYES

Trematoda: DIGENEA

Family GORGODERIDAE

Nagmia floridensis (19). Host: *Dasyatis sabina* (ray). Coelom. Alligator Harbor. W. E. Brillhart.

Family SANGUINICOLIDAE

Selachohemecus olsoni (43). Host: *Scoliodon tærrae-novae* (Sharpposed Shark). In heart. Alligator Harbor. Short (1954).

Cestoda: TETRAPHYLLIDEA

Family ONCHOBOTHRIIDAE

Acanthobothrium sp. (2). Host: *Dasyatis sabina* (ray). Spiral valve. Alligator Harbor. D. N. Kruse.

Family PHYLLOBOTHRIIDAE

Anthrobothrium spp. (3). Host: *Dasyatis sabina* (ray). Spiral valve. Alligator Harbor. R. T. Damian. Two distinct species.

Echeneibothrium sp. (4). Host: *Dasyatis sabina* (ray). Spiral valve. Alligator Harbor. R. T. Damian.

Cestoda: TRYPANORHYNCHA

Family EUTETRARHYNCHIDAE

Parachristianella dimegacantha (5). Adult and definitive host unknown; plerocerci in *Penaeus duorarum* (shrimp). Alligator Harbor. Kruse (1959).

Parachristianella monomegacantha (6). Adult and definitive host unknown; plerocerci in *Penaeus duorarum* (shrimp). Alligator Harbor. Kruse (1959).

Prochristianella penaei (7). Adult and definitive host unknown; plerocerci in *Penaeus aztecus*, *P. duorarum*, and *P. setiferus* (shrimps). Alligator Harbor. Kruse (1959).

OSTEICHTHYES

Trematoda: MONOGENEA

Family DACTYLOGYRIDAE

Urocleidus principalis (1). Host: *Micropterus salmoides* (Largemouth Bass). Gills. Leon Co. R. T. Damian.

Family DISCOCOTYLIDAE

Grubea sp. (2). Host: *Caranx crysos* (Blue Runner). Gills. Alligator Harbor. A. Wagner.

Trematoda: DIGENEA

Family ACANTHOCOLPIDAE

Stephanostomum sp. (1). Host: *Menticirrhus americanus* (Whiting). Intestine. Alligator Harbor. Martha Nez.

Family ALLOCREADIIDAE

Opcoeloides fimbriatus (2). Host: *Menticirrhus americanus* (Whiting); intestine; metacercariae in *Penaeus duorarum* (shrimp). Alligator Harbor and Apalachicola Bay, Franklin Co.; St. Marks River mouth, Wakulla Co. Kruse (1959).

Family BUCEPHALIDAE

Bucephalopsis sp. (4). Host: *Sciaenops ocellata* (Redfish). Intestine. Alligator Harbor. G. T. Riggan.

Bucephalus cuculus (5). Definitive host not known; young forms in *Crasostrea virginica* (oyster). Apalachicola Bay, Franklin Co. R. W. Menzel.

Family DIDYMOZOIDAE (?)

Distomum fenestratum (8). Definitive host not known; immature forms in intestine of various marine fishes. Alligator Harbor. R. B. Short. Though the adults are unknown, this worm is believed to belong to the family Didymozoidae (Cable, 1955).

Family GORGODERIDAE

Phyllodistomum sp. (20). Host: *Ictalurus natalis* (Yellow Catfish). Coelom and kidney. Fresh water creek, Leon Co. H. Loftin.

Family HEMIURIDAE

Sterrhurus floridensis (22). Host: *Centropristes melanus* (Blackfish). Intestine. Alligator Harbor. D. N. Kruse.

Tubulovesicula sp. (21). Definitive host not known; metacercariae were taken beneath the external ovarian membrane and from cysts in the body wall of *Cynoscion arenarius* (Sand Trout). Alligator Harbor. R. B. Short. Some of the metacercariae were with eggs and were therefore progenetic.

Family PLEORCHIDAE

Pleorchis americanus (35). Host: *Cynoscion arenarius* (Sand Trout). Intestine. Alligator Harbor. P. C. White. Previously reported from Mass., in *C. regalis*.

Family SANGUINICOLIDAE

Cardicola laruei (42). Host: *Cynoscion arenarius* (Sand Trout) and *C. nebulosus* (Spotted Squeteague). Heart. Alligator Harbor and St. Marks flats, Wakulla Co. Short (1953).

AMPHIBIA

Trematoda: MONOGENEA

Family POLYSTOMATIDAE

Polystoma integerrimum (4). Host: *Hyla cinerea* (Green Tree Frog). Bladder. Near Tallahassee, Leon Co. R. B. Holliman.

Trematoda: DIGENEA

Family GORGODERIDAE

Gorgoderina sp. (18). Host: *Eurycea longicauda* (Three-lined Salamander). Location in host not known. Leon Co. H. Loftin.

Family PARAMPHISTOMIDAE

Megalodiscus sp. (31). Host: *Rana catesbeiana* (Bullfrog). Colon. Near Tallahassee, Leon Co. H. Loftin.

Family PLAGIORCHIDAE

Haematoloechus floedae (33). Host: *Rana catesbeiana* (Bullfrog). Lungs. Leon Co. R. T. Damian.

Haematoloechus medioplexus (34). Host: *Rana pipiens* (Leopard Frog). Lungs. Leon Co. D. N. Kruse.

Cestoda: PROTEOCEPHALA

Family PROTEOCEPHALIDAE

Ophiotaenia sp. (1). Host: *Siren lacertina* (Great Siren). Intestine. Leon Co. R. T. Damian.

REPTILIA

Trematoda: MONOGENEA

Family POLYSTOMATIDAE

Neopolystoma orbiculare (3). Host: *Deirochelys reticularia* (Chicken Turtle). Bladder. Leon Co. R. T. Damian.

Polystomoidella oblonga (5). Host: *Sternotherus odoratus* (Common Musk Turtle). Bladder. Leon Co. L. C. Oglesby.

Trematoda: DIGENEA

Family PRONOCEPHALIDAE

Macravestibulum sp. (36). Host: *Pseudomys floridana* (Coastal Plain Turtle). Upper intestine. Leon Co. R. T. Damian. A new species to be described by Damian.

Family PROTERODIPLOSTOMIDAE

Crocodilicola pseudostoma (37). Host: *Alligator mississippiensis* (Alligator). Intestine. Northwest Florida. D. N. Kruse.

Polycotyle ornata (38). Host: *Alligator mississippiensis* (Alligator). Intestine. Northwest Florida. D. N. Kruse.

Family SPIRORCHIIDAE

Vasotrema sp. (44). Host: *Trionyx ferox* (Soft-shelled Turtle). Location in host not determined. Franklin Co. H. Loftin.

Family TELORCHIIDAE

Telorchis sp. (47). Host: *Pseudemys floridana* (Coastal Plain Turtle). Intestine. Leon Co. R. T. Damian.

AVES

Trematoda: DIGENEA

Family BRACHYLAEMIDAE

Brachylaema sp. (3). Host: *Hylocichla ustulata* (Swainson's Thrush). Intestine. Alligator Harbor. H. Loftin.

Family CYCLOCOELIDAE

Cyclocoelum obscurum (6). Hosts: *Catoptrophorus semipalmatus* (Willet), *Calidris canutus* (Knot), *Limnodromus griseus* (Short-billed Dowitcher), and *Aythya collaris* (Ring-necked Duck). Air sacs and coelom. Shorebirds taken at Alligator Harbor; the duck at Lake Iamonia, Leon Co. MacInnis (1959); and H. Loftin.

Family DICROCOELIIDAE

Brachylecithum americanum (7). Host: *Agelaius phoeniceus* (Redwinged Blackbird). Liver. Alligator Harbor. E. A. Kelly.

Family DIPLOSTOMIDAE

Posthodiplostomum sp. (10). Host: *Hydranassa tricolor* (Louisiana Heron). Intestine. Wakulla River, Wakulla Co. D. W. Dery.

Family ECHINOSTOMATIDAE

Echinochasmus sp. (11). Host: *Charadrius semipalmatus* (Semipalmated Plover). Intestine. Alligator Harbor. A. N. Sastry.

Echinoparyphium sp. (12). Host: *Squatarola squatarola* (Black-bellied Plover). Intestine. Shell Point, Wakulla Co. H. Loftin.

Echinostoma sp. (13). Host: *Corvus brachyrhynchos* (Common Crow). Intestine. Alligator Harbor. D. N. Kruse.

Himasthla sp. (14). Host: *Erolia alpina* (Dunlin). Intestine. Wakulla Co. C. E. King and A. J. MacInnis.

Longicollia sp. (15). Host: *Erolia alpina* (Dunlin). Intestine. Wakulla Beach, Wakulla Co. E. L. Tyson. Yamaguti (1958: 652) lists only one species of this genus, *L. echinata*, from west Siberia in *Capella gallinago* (Common Snipe).

Stephanoprora sp. (16). Hosts: *Thalasseus maximus* (Royal Tern) and *Squatarola squatarola* (Black-bellied Plover). Intestine. Tern from Alligator Harbor; plover from Shell Point, Wakulla Co. D. N. Kruse and H. Loftin.

Family EUCOTYLIDAE

Tanaisia sp. (17). Host: *Limnodromus griseus* (Short-billed Dowitcher). Kidney. Shell Point, Wakulla Co. H. Loftin.

Family HETEROPHYIDAE

Galactosomum spinetum (23). Host: *Gelochelidon nilotica* (Gull-billed Tern). Air sacs or coelom. Alligator Harbor. MacInnis (1959).

Tetracladium sp. (24). Host: *Sterna forsteri* (Forster's Tern). Lower colon. Alligator Harbor. R. T. Damian. Yamaguti (1958: 724) lists only one species of this genus, *T. sternaе*, from Russia in *Sterna hirundo* (Common Tern).

Family MICROPHALLIDAE

Gynaecotyla riggini (26). Hosts: *Arenaria interpres* (Ruddy Turnstone), and *Catoptrophorus semipalmatus* (Willet). Intestine. Alligator Harbor. Dery (1958) and MacInnis (1959).

Maritrema gratiosum (27). Host: *Limnodromus griseus* (Short-billed Dowitcher). Intestine. Alligator Harbor. R. B. Short.

Maritrema sp. (28). Host: *Limnodromus griseus* (Short-billed Dowitcher). Intestine. Shell Point, Wakulla Co. H. Loftin. Distinct from *M. gratiosum*.

Spelotrema sp. (29). Host: *Aythya affinis*. (Lesser Scaup). Intestine. Carrabelle, Franklin Co. A. N. Sastry.

Family OPISTHORCHIIDAE

Pachytrema sanguineus (30). Host: *Thalasseus maximus* (Royal Tern). Gall bladder. Alligator Harbor. MacInnis (1959).

Family PHILOPHTHALMIDAE

Parorchis acanthus (32). Hosts: *Arenaria interpres* (Ruddy Turnstone) and *Limnodromus griseus* (Short-billed Dowitcher). Cloaca. Alligator Harbor. W. E. Brillhart and R. B. Short. Cercariae from the snail, *Cerithidia scalariformis*, found at Shell Point, Wakulla Co., encysted on glassware in laboratory. Fed to chicks by P. D. Lewis, the metacercariae developed into adult *P. acanthus* in about 14 days.

Family PSILOSTOMATIDAE

Psilochasmus sp. (39). Host: *Squatarola squatarola* (Black-bellied Plover). Intestine. Shell Pt., Wakulla Co. H. Loftin.

Family STRIGIDAE

Cardiocephalus medioconiger (45). Hosts: *Sterna forsteri* (Forster's Tern), *Thalasseus maximus* (Royal Tern), and *Larus atricilla* (Laughing Gull). Small intestine. Alligator Harbor. MacInnis (1959).

Cotylurus aquavis (46). Host: *Larus atricilla* (Laughing Gull). Intestine. Alligator Harbor. L. C. Oglesby.

Family TROGLOTREMATIDAE

Renicola glandoloba (48). Hosts: *Larus atricilla* (Laughing Gull) and *Sterna hirundo* (Common Tern). Kidney. Alligator Harbor. MacInnis (1959). MacInnis found only one previous report of this species, in *Puffinus kuhlii* (a shearwater) from Suez. L. C. Oglesby reported an unidentified specimen of this genus from Alligator Harbor from *Sterna forsteri* (Forster's Tern).

Cestoda: CYCLOPHYLLIDEA

Family DILEPIDIDAE

Liga sp. (12). Host: *Squatarola squatarola* (Black-bellied Plover). Intestine. Shell Point, Wakulla Co. H. Loftin.

Paricterotaenia sp. (13). Host: *Larus atricilla* (Laughing Gull). Small intestine. Alligator Harbor. R. T. Damian.

Family HYMENOLEPIDIDAE

Fimbriaria sp. (14). Host: *Podilymbus podiceps* (Pied-billed Grebe). Intestine. Leon Co. A. J. MacInnis.

Hymenolepis sp. (15). Hosts: *Limnodromus griseus* (Short-billed Dowitcher) and *Podilymbus podiceps* (Pied-billed Grebe). Intestine. Dowitcher from Alligator Harbor; grebe from Leon Co. D. N. Kruse.

Oligorchis sp. (16). Host: *Cyanocitta cristata* (Blue Jay). Intestine. Tallahassee, Leon Co. R. T. Damian.

MAMMALIA

Trematoda: DIGENEA

Family DIPLOSTOMIDAE

Pharyngostomoides ovale (9). Host: *Procyon lotor* (Raccoon). Intestine. Jefferson Co. E. L. Tyson.

Family LECITHODENDRIIDAE

Lecithodendrium sp. (25). Host: *Dasypterus floridanus* (Florida Yellow Bat). Intestine. St. Marks Wildlife Refuge, Wakulla Co. D. N. Kruse.

Family RHOPALIASIDAE

Rhopalias baculifer (40). Host: *Didelphis marsupialis* (Opossum). Intestine. Leon Co. D. N. Kruse.

Rhopalias coronatus (41). Host: *Didelphis marsupialis* (Opossum). Intestine. Leon Co. L. C. Oglesby.

Cestoda: CYCLOPHYLLIDEA

Family ANOPLICEPHALIDAE

Atriotaenia sp. (8). Host: *Procyon lotor* (Raccoon). Intestine. Jefferson Co. L. C. Oglesby.

Oochoristica mephitis (9). *Mephitis elongatus* (Skunk). Intestine. Jefferson Co. E. L. Tyson.

Oochoristica procyonis (10). Host: *Procyon lotor* (Raccoon). Intestine. Jefferson Co. E. L. Tyson.

Family DILEPIDIDAE

Dipylidium caninum (11). Host: *Canis familiaris* (Dog). Intestine. Leon Co. R. B. Holliman *et al.*

Family TAENIIDAE

Hydatigera lynx (17). Host: *Lynx rufus* (Bobcat). Intestine. Jefferson Co. E. L. Tyson.

Hydatigera taeniaeformis (18). Host: *Lynx rufus* (Bobcat). Intestine. Jefferson Co. E. L. Tyson.

Taenia pisiformis (19). Hosts: *Canis familiaris* (Dog), *Felis domestica* (Cat), and *Lynx rufus* (Bobcat). Dog and cat from Leon Co.; bobcat from Jefferson Co. A. Wagner and E. L. Tyson, respectively.

Cestoda: PSEUDOPHYLLIDEA

Family DIBOTHRIOCEPHALIDAE

Spirometra mansonoides (20). Host: *Lynx rufus* (Bobcat). Intestine. Panacea, Franklin Co.; and Jefferson Co. A. Wagner and E. L. Tyson, respectively.

Spirometra urichi (21). Host: *Lynx rufus* (Bobcat). Intestine. Panacea, Franklin Co. A. Wagner. This and the above specimen of *Spirometra mansonoides* from Panacea were taken from the same bobcat.

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